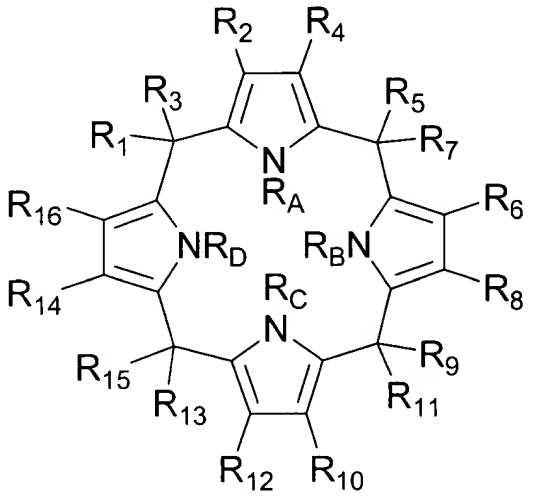
Amendments to and Listing of the Claims:

Please amend claims 120-124 and 127 and cancel claims 118, 119, 125, 126, and 131-140 without prejudice to the filing of one or more divisional applications directed to the subject matter thereof, so that the claims read as follows:

1-119. (canceled)

120. (currently amended) A composition comprising a calix[4]pyrrole ~~calix[n]pyrrole~~ macrocycle that has 4 [[n]] pyrrole rings linked in α positions via sp^3 hybridized *meso*-carbon atoms, wherein neither non-pyrrole substituent of the *meso*-carbon atoms is hydrogen, at least one pyrrole ring comprises a non-hydrogen β-substituent~~, and wherein n is 4, 5, 6, 7, or 8;~~ and the macrocycle is noncovalently-complexed to a molecular or anionic species.

121. (currently amended) The composition of claim 120 wherein the calyx[4]pyrrole ~~calyx[n]pyrrole~~ macrocycle has structure **I**:



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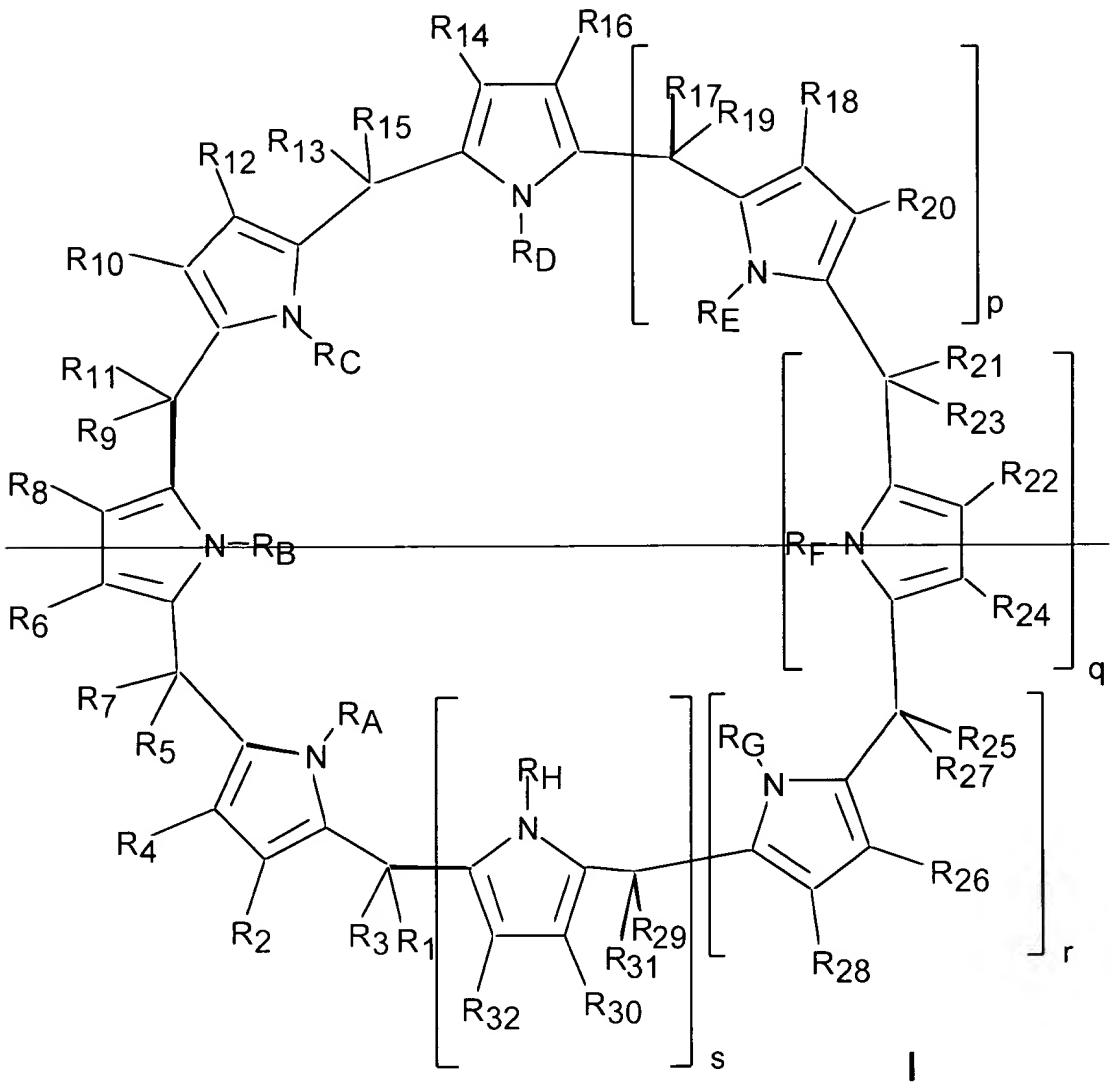

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wherein

~~when n is 4, p = q = r = s = 0,~~ R_1 - R_{16} are independently substituents as listed in paragraph i) below, and R_A - R_D are independently substituents as listed in paragraph ii) below;

~~when n is 5, p = 1, q = r = s = 0, R_1 to R_{20} are independently substituents as listed in paragraph i) below, and R_A - R_E are independently substituents as listed in paragraph ii) below;~~

~~when n is 6, p = q = 1, r = s = 0, R_1 to R_{24} are independently substituents as listed in paragraph i) below, and R_A – R_F are independently substituents as listed in paragraph ii) below;~~

~~when n is 7, p = q = r = 1, s = 0, R_1 to R_{28} are independently substituents as listed in paragraph i) below, and R_A – R_G are independently substituents as listed in paragraph ii) below;~~

~~when n is 8, p = q = r = s = 1, R_1 to R_{32} are independently substituents as listed in paragraph i) below, and R_A – R_H are independently substituents as listed in paragraph ii) below;~~

i) hydrogen, halide, hydroxyl, alkyl, alkenyl, or alkynyl~~, aryl, alkylaryl, nitro, phospho, formyl, acyl, hydroxyalkyl, alkoxy, hydroxyalkoxy, hydroxyalkenyl, hydroxyalkynyl, saccharide, carboxy, carboxyalkyl, carboxyamide, carboxyamidealkyl, amino, amido, aminoalkyl, phosphoalkyl, alkyl sulfoxide, alkyl sulfone, alkyl sulfide, tetrahydropyran, tetrahydrothiapyran, thioalkyl, haloalkyl, haloalkenyl, haloalkynyl, alkyl ester, a site-directing molecule, a catalytic group, a reporter group, a binding agent, or a couple that is coupled to a site-directing molecule, to a catalytic group, to a reporter group, or to a binding agent~~;

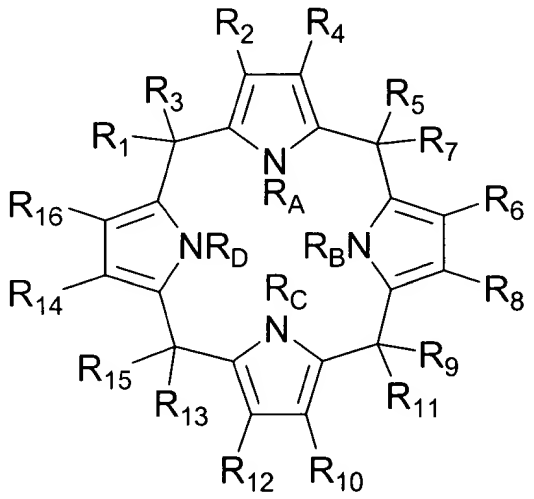
ii) hydrogen[[,]] or alkyl~~, aminoalkyl, alkylsulfone, carboxy alkyl, carboxyamidealkyl, phospho alkyl, alkyl sulfoxide, alkyl sulfone, alkyl sulfide, haloalkyl, aryl, N-oxide, dialkylamino, carbamate, or arylsulfonyl~~;

wherein odd-numbered R substituents are other than hydrogen and at least one even-numbered R substituent is other than hydrogen.

122. (currently amended) A composition comprising a calix[4]pyrrole ~~calix[n]pyrrole~~ macrocycle that has 4 [[n]] pyrrole rings linked in α positions via sp^3 hybridized *meso*-carbon atoms, wherein neither non-pyrrole substituent of the *meso*-carbon atoms is hydrogen, at least one pyrrole ring comprises a non-hydrogen-substituted nitrogen atom~~, and~~

~~wherein n is 4, 5, 6, 7, or 8;~~ and the macrocycle is noncovalently-complexed to a molecular or anionic species.

123. (currently amended) The composition of claim 122 wherein the calix[4]pyrrole ~~calix[n]pyrrole~~ macrocycle has structure **I**:



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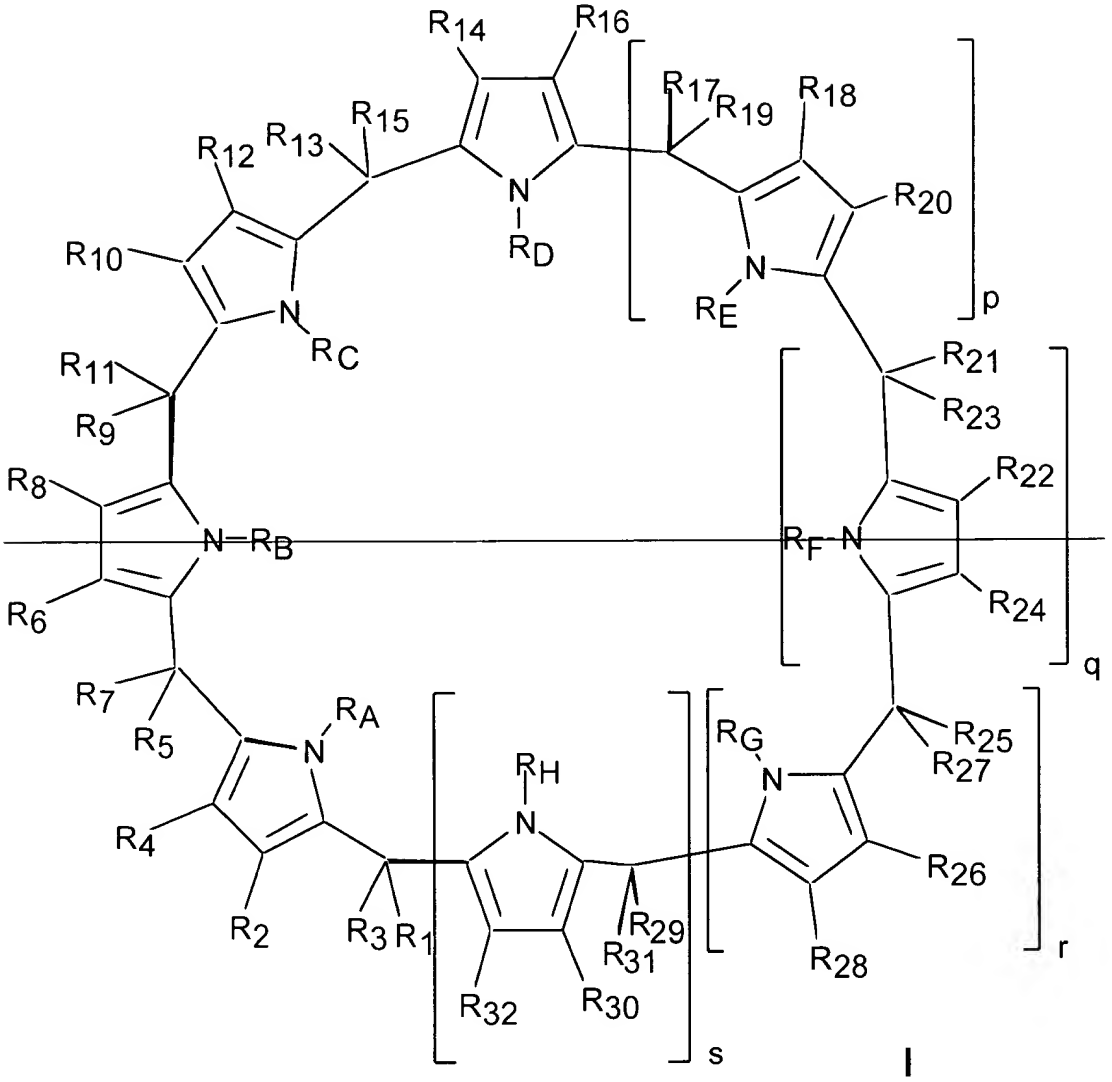

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wherein

~~when n is 4, p = q = r = s = 0,~~ R_1 - R_{16} are independently substituents as listed in paragraph i) below, and R_A - R_D are independently substituents as listed in paragraph ii) below;

~~when n is 5, p = 1, q = r = s = 0, R_1 to R_{20} are independently substituents as listed in paragraph i) below, and R_A - R_E are independently substituents as listed in paragraph ii) below;~~

~~when n is 6, p = q = 1, r = s = 0, R_1 to R_{24} are independently substituents as listed in paragraph i) below, and R_A – R_F are independently substituents as listed in paragraph ii) below;~~

~~when n is 7, p = q = r = 1, s = 0, R_1 to R_{28} are independently substituents as listed in paragraph i) below, and R_A – R_G are independently substituents as listed in paragraph ii) below;~~

~~when n is 8, p = q = r = s = 1, R_1 to R_{32} are independently substituents as listed in paragraph i) below, and R_A – R_H are independently substituents as listed in paragraph ii) below;~~

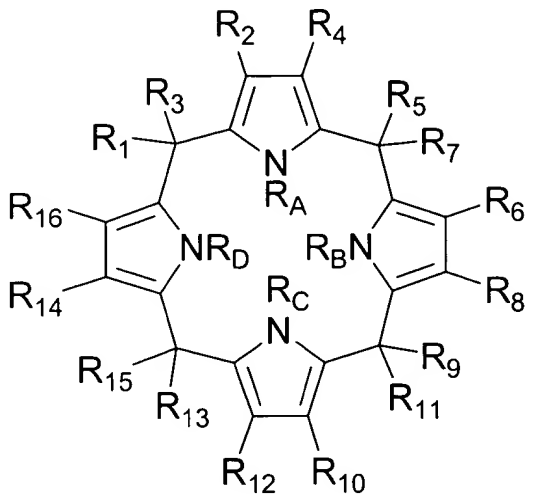
i) hydrogen, halide, hydroxyl, alkyl, alkenyl, or alkynyl~~, aryl, alkylaryl, nitro, phospho, formyl, acyl, hydroxyalkyl, alkoxy, hydroxyalkoxy, hydroxyalkenyl, hydroxyalkynyl, saccharide, carboxy, carboxyalkyl, carboxyamide, carboxyamidealkyl, amino, amido, aminoalkyl, phosphoalkyl, alkyl sulfoxide, alkyl sulfone, alkyl sulfide, tetrahydropyran, tetrahydrothiapyran, thioalkyl, haloalkyl, haloalkenyl, haloalkynyl, alkyl ester, a site-directing molecule, a catalytic group, a reporter group, a binding agent, or a couple that is coupled to a site-directing molecule, to a catalytic group, to a reporter group, or to a binding agent;~~

ii) hydrogen[[,]] or alkyl~~, aminoalkyl, alkylsulfone, carboxy alkyl, carboxyamidealkyl, phospho alkyl, alkyl sulfoxide, alkyl sulfone, alkyl sulfide, haloalkyl, aryl, N-oxide, dialkylamino, carbamate, or arylsulfonyl~~;

wherein odd-numbered R substituents are other than hydrogen and at least one of ~~R_A–R_H~~ R_A – R_D is other than hydrogen.

124. (currently amended) A composition comprising a calix[4]pyrrole ~~calix[n]pyrrole~~ macrocycle that has 4 [[n]] pyrrole rings linked in α positions via sp^3 hybridized *meso*-carbon atoms, wherein neither non-pyrrole substituent of the *meso*-carbon atoms is hydrogen ~~and wherein n is 4, 5, 6, 7, or 8;~~ and the macrocycle is noncovalently-complexed to a

molecular or anionic species, wherein the calix[4]pyrrole ~~calix[n]pyrrole~~ macrocycle has structure **I**:



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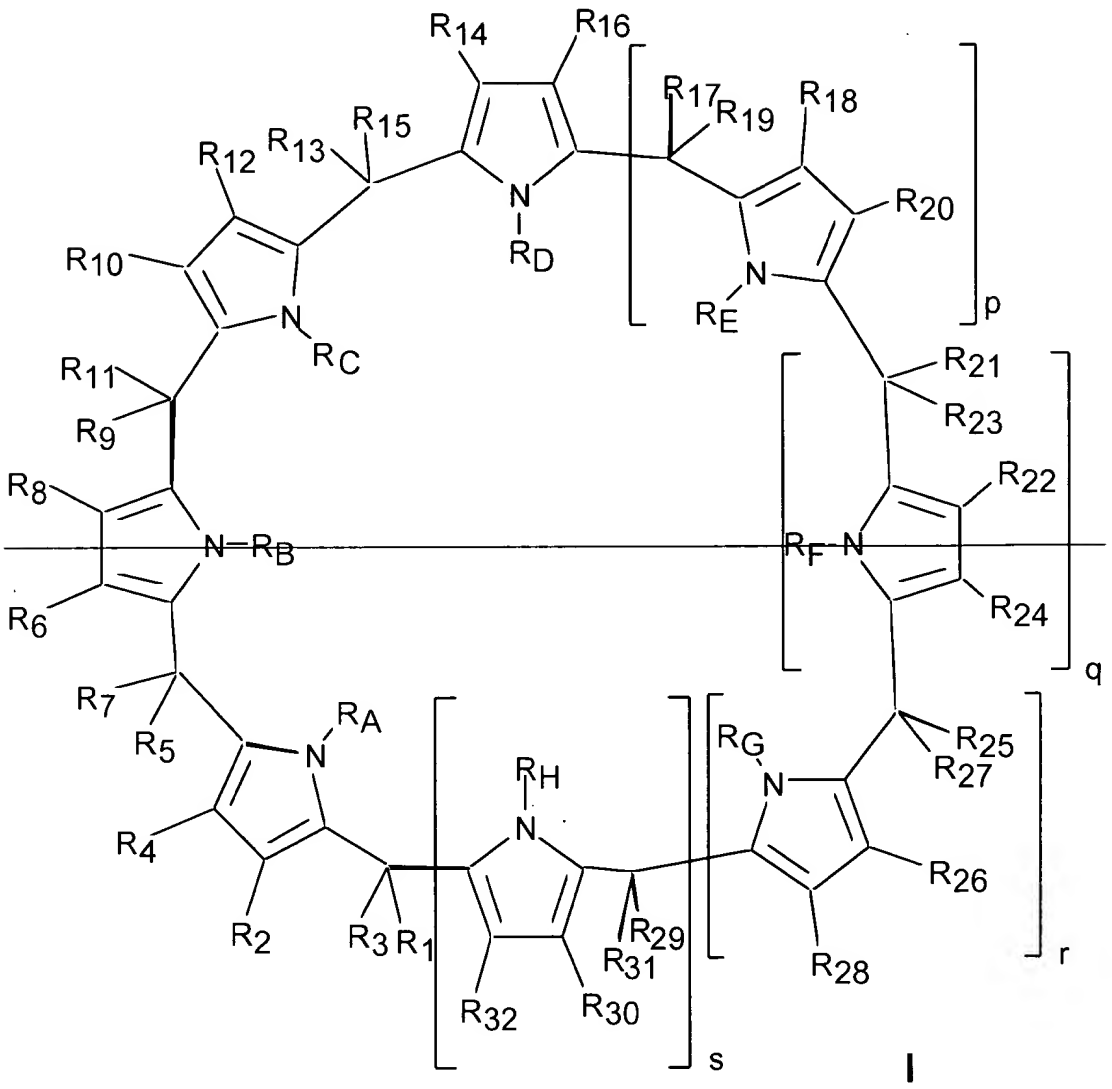

I

wherein

~~when n is 4, p = q = r = s = 0,~~ R_1 - R_{16} are independently substituents as listed in paragraph i) below, and R_A - R_D are independently substituents as listed in paragraph ii) below;

~~when n is 5, p = 1, q = r = s = 0, R_1 to R_{20} are independently substituents as listed in paragraph i) below, and R_A - R_E are independently substituents as listed in paragraph ii) below;~~

~~when n is 6, p = q = 1, r = s = 0, R_1 to R_{24} are independently substituents as listed in paragraph i) below, and R_A – R_F are independently substituents as listed in paragraph ii) below;~~

~~when n is 7, p = q = r = 1, s = 0, R_1 to R_{28} are independently substituents as listed in paragraph i) below, and R_A – R_G are independently substituents as listed in paragraph ii) below;~~

~~when n is 8, p = q = r = s = 1, R_1 to R_{32} are independently substituents as listed in paragraph i) below, and R_A – R_H are independently substituents as listed in paragraph ii) below;~~

i) hydrogen, halide, hydroxyl, alkyl, alkenyl, or alkynyl~~, aryl, alkylaryl, nitro, phospho, formyl, acyl, hydroxyalkyl, alkoxy, hydroxyalkoxy, hydroxyalkenyl, hydroxyalkynyl, saccharide, carboxy, carboxyalkyl, carboxyamide, carboxyamidealkyl, amino, amido, aminoalkyl, phosphoalkyl, alkyl sulfoxide, alkyl sulfone, alkyl sulfide, tetrahydropyran, tetrahydrothiapyran, thioalkyl, haloalkyl, haloalkenyl, haloalkynyl, alkyl ester, a site-directing molecule, a catalytic group, a reporter group, a binding agent, or a couple that is coupled to a site-directing molecule, to a catalytic group, to a reporter group, or to a binding agent~~;

ii) hydrogen[[,]] or alkyl~~, aminoalkyl, alkylsulfone, carboxy alkyl, carboxyamidealkyl, phospho alkyl, alkyl sulfoxide, alkyl sulfone, alkyl sulfide, haloalkyl, aryl, N-oxide, dialkylamino, carbamate, or arylsulfonyl~~;

wherein odd-numbered R substituents are other than hydrogen and at least two substituents of paragraph i) or ii) are coupled to form a bridged structure, and when coupled to form a bridged structure, nonbridged substituents are as defined in paragraph i) or ii).

125-126. (canceled)

127. (currently amended) A composition comprising a calix[4]pyrrole ~~calix[n]pyrrole~~ macrocycle that has 4 [[n]] pyrrole rings linked in α positions via sp^3 hybridized *meso*-carbon atoms, wherein neither non-pyrrole substituent of the *meso*-carbon atoms is

hydrogen ~~and wherein n is 4, 5, 6, 7, or 8;~~ and the macrocycle is noncovalently-complexed to a halide anion.

128. (previously presented) The composition of claim 127 wherein the halide anion is chloride.

129. (previously presented) The composition of claim 127 wherein the halide anion is fluoride.

130. (previously presented) The composition of claim 127, wherein the halide anion is selected from the group consisting of chloride and fluoride.

131-140. (canceled)